

REMARKS

In the Office Action, the pending claims (i.e., claims 1-4 and 13-21) were rejected as being obvious over the combination of U.S. Patent 6,650,318 to Arnon and U.S. Patent 7,259,747 to Bell. Applicant traverses the rejection.

Independent claim 1 is directed to a system for detection of an object in an area in space. The claimed system comprises an imager and a reception device. The imager projects an original holographic image onto the area. The imager projects (1) a reference beam and (2) an object beam that interfere at the sensing surface of the reception device. A computer is in communication with both the imager and the reception device. The computer determines the difference pattern between the original holographic image projected by the imager and the interference sensed by the reception device. The difference pattern can then be used to change the image projected by the imager. The resulting holographic data imposed on the sensor is then comprised of both the hologram as well as the actual object (finger, etc.) and can then be analyzed to determine the interaction purported by the user.

The Office rejected claim 1 as being obvious over the combination of Arnon and Bell. A person having ordinary skill in the art at the time of the invention, however, could not have come up with the invention of claim 1 based on Arnon and Bell.

Arnon is directed to a device that projects an image of a data input device. Optical, acoustic, position, or movement sensors positioned around the projected image detect interaction with the projected image. As recognized in the Office Action, Arnon does not disclose determining a difference pattern between an interference pattern for the original holographic image and an interference pattern for the image sensed by the

reception device, and using the difference pattern to project a modified holographic image that represents a change in the original holographic image.

To overcome these deficiencies of Arnon, the Office relies on Bell. Bell is directed to a device that allows interaction between a person and a computer display system using the person's movement and position as input to the computer. Bell's system uses a co-located camera and projector. The image of the person is captured by the camera and transmitted to the computer, which uses an object detection algorithm to generate a real time video effect. The real time video effect is transmitted to the projector, which projects the video effect. See Bell at col. 4:23-34.

Thus, Bell's system does not determine a difference pattern between an interference pattern for the original holographic image and an interference pattern for the image sensed by the reception device, and use the difference pattern to project a modified holographic image that represents a change in the original holographic image. In fact, Bell does not use holographic images at all.

The Office cites passages in columns 7 and 8 of Bell as disclosing these features of claim 1, but the cited passages do not fill in the deficiencies of the primary reference, Arnon. Rather, the cited passages of Bell merely teach using a patterned light source to aid in the object detection process. Bell then uses simple image analysis (pixel-by-pixel subtraction, filtering, and location) to maximize the ability of object detection algorithm to detect the object.

Bell's image analysis techniques would not result in usable information if used with holography. Holographic pattern analysis does not employ a "background" image as used in Bell, but rather a fully detailed, three dimensional interference pattern. As a

result, a person of ordinary skill in the art, having read Arnon and Bell, would not come up with the invention claim 1 based on Arnon and Bell. Simply put, neither reference discloses determining a difference pattern between an interference pattern for the original holographic image and an interference pattern for the image sensed by the reception device, and using the difference pattern to project a modified holographic image that represents a change in the original holographic image.

Therefore, applicant submits that claim 1, and its dependent claims, are not obvious in view of the cited references. For analogous reasons, applicant submits that claim 16 and its dependent claims are not obvious in view of the cited references.

CONCLUSION


Applicant respectfully submits that all of the claims presented in the present application, as either amended or initially presented in this response, are in condition for allowance. Applicant's present Amendment should not in any way be taken as acquiescence to any of the specific assertions, statements, etc., presented in the Office Action not explicitly addressed herein. Applicant reserves the right to specifically address all such assertions and statements in subsequent responses.

Applicant has made a diligent effort to properly respond to the Office Action and believe that the claims are in condition for allowance. If the Examiner has any

remaining concerns, the Examiner is invited to contact the undersigned at the telephone number set forth below so that such concerns may be expeditiously addressed.

Respectfully submitted,

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